

IMPROVISED MUNITIONS

BLACK BOOK

Volume 1

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DESERT PUBLICATIONS

IMPROVED MUNITIONS BLACK BOOK
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IMPROVED MORTARS
HANDBOOK

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change of address so that you may receive them.

INTRODUCTION

1 Purpose and Scope

In Unconventional Warfare operations it may be impossible or too costly to use conventional military munitions as tools in the conduct of sabotage missions. It may be necessary instead to fabricate the required munitions from locally available or procured materials. The purpose of this Manual is to increase the potential of Special Forces and guerrilla troops by describing in detail the manufacture of munitions from available materials locally available materials.

Manufactured, precision-fabricated devices will be more effective, more reliable, and easier to use than improvised ones, but such items will just not be available for certain operations for security or logistical reasons. Therefore the operator will have to rely on items that he can buy in a shop or paint store, find in a junk pile, or scrounge from military dumps. Also many of the ingredients and materials used in fabricating homemade items are so commonplace or innocuous they can be carried without arousing suspicion. The completed item itself often is more easily concealed or camouflaged. In addition, the field-expedited item can be tailored for the intended target, thereby providing an advantage over the standard item in its ability and versatility.

This Manual contains simple explanations and illustrations to permit construction of the items by personnel not normally familiar with making and handling munitions. These items were researched to assist an individual from either public domain or personnel engaged in activities in special warfare work. This Manual contains methods for fabricating explosives, detonators, propellants, shaped charges, small arms munitions, incendiaries, delays, switches, and similar items from locally available materials.

2 Safety and Reliability

Each item was evaluated both theoretically and experimentally to assure safety and reliability. A large number of items were discarded because of inherent hazards or unreliable performance. Safety warnings are prominently inserted in the procedures where they apply but it is emphasized that safety is a matter of attitude. It is a proven fact that men who are alert, who think and act rationally, and who take correct precautions take fewer accidents than the careless and indifferent. It is important that work be planned and that instructions be followed in the labor; all work should be done in a rational, orderly manner. In the manufacture of explosives, detonators, propellants and incendiaries, equipment must be kept clean and each energy concentration accurate.

barrier, impact, hot objects, flame, chemical reactions, and other hazards should be avoided.

These items were found to be effective as model components, however, samples should be made and tested carefully prior to actual use to assure proper performance. Chemical items should be used as much as possible after preparation and kept free of moisture, dirt, and the above energy considerations. Special care should be taken in any attempt at substitution or use of items for purposes other than that specified or intended.

4 User Comments

It is anticipated that this manual will be revised or changed from time to time. In this way it will be possible to update general material and add new items as they become available. Users are encouraged to submit recommended changes or comments to improve this manual. Comments should be keyed to the specific page, paragraph, and line of the text in which changes are recommended. Reasons should be given valid for each comment to insure understanding and complete review. Comments should be forwarded directly to Commandant, United States Army Special Warfare School, Fort Bragg, North Carolina, 28507 and Commanding Officer, United States Army, Philadelphia Arsenal, 203PA-3000 Philadelphia, Pennsylvania 19101.

PLASTIC EXPLOSIVE FILLER

A plastic explosive filler can be made from potassium chlorate and picric acid jelly. This explosive can be detonated with common #6 or any military blasting cap.

MATERIALS REQUIRED

Potassium chlorate

Picric acid jelly (Piculene)

Plate of round cloth

Wide bowl or other container for mixing ingredients.

HOW TO USE

Medicine

Manufacturers of matches

Medicine

Laboratory

PROCEDURE

1. Spread potassium chlorate crystals thinly on a hard surface. Roll the round cloth over crystals to crush into a very fine powder until it looks like fine powder or about that.



2. Place 3 parts powdered potassium chlorate and 1 part picric acid jelly in a wide bowl or similar container. Mix ingredients with hands (cautiously) until a uniform paste is obtained.



NOTE: Store explosive in a waterproof container until ready to use.

POTASSIUM NITRATE

Potassium nitrate (saltpeter) can be extracted from many natural sources and can be used to make nitric acid, black powder and many pyrotechnics. The yield ranges from .1 to 1% by weight, depending on the fertility of the soil.

MATERIALS

Nitrate bearing earth or other material, about 3-5/8 gallons (2-5/8 tons)

Flux wood ashes, about 1/8 cup (1/8 liter)

Bucket or similar container, about 4 gallons (15 liters) in volume (Plastic, metal, or wood)

3 pieces of finely woven cloth, each slightly larger than bottom of bucket

Shallow pan or dish, at least as large as bottom of bucket

Shallow heat resistant container (ceramic, metal, etc.)

Water - 1-5/8 gallons (4-5/4 liters)

Asal, kalis, pyrotechnics, or other salts producing insoluble

Alcohol about 1 gallon (4 liters)

(ethanol, methyl alcohol, etc.)

Spent sources (flax, chlorine bleach, etc.)

Paper

Tip

PROCESS

Soil containing old decayed vegetable or animal matter

Old cellars and/or barns that have

leaked from old buried grounds

Decayed stone or mortar holding instruments

Totally buried nitrate wood ash powder

Totally buried paper (Alkali)

NOTE: Only the nature of the sources of ingredients was important. That, for value as much potassium nitrate, double quantities used.

PROCEDURE

1. Pour the bottom of bucket. Spread two pieces of cloth over bottom inside of bucket.



2. Place wood shims on cloth and spread to make a layer about the thickness of the cloth. Place second piece of cloth on top of shims.



3. Place dirt in bucket.



4. Place bucket over shallow container. Bucket may be supported as shown if necessary.



8. Boil water and pour it over until it reaches a little at a time. Allow water to pass through holes in bottom two-shelf container. The water will pass through all of the earth. Allow dissolved liquid to cool and settle for 1 to 2 hours.

NOTE: Do not pour all of the water at once, where this may cause overflow.

9. Carefully strain off liquid into food-rejection container. Discard any sludge remaining to bottom of the shallow container.

10. Soil residues may be fine but at least 2 inches. Small pieces of soil will begin to appear in the water flow. Strain them out as they flow, using any type of improved strainer (paper, etc.).



11. When liquid has boiled down to approximately half the original volume, remove from fire and let sit. Allow half an hour and an equal volume of alcohol. When mixture is poured through paper, small water crystals will collect on top of it.



12. To purify the potassium nitrate, concentrate the dry crystals in the shallowest possible amount of boiled water. Remove any salt crystals that appear (they H_2O pass through an improved filter made of several pieces of paper and evaporate or gently heat the concentrated solution to dryness.

13. Spread crystals on flat surface and allow to dry. The potassium nitrate crystals are now ready for use.

EMPLOYEE BLACK POWDER

Black powder can be prepared in a simple, safe manner. It may be used as blasting or gun powder.

MATERIALS/REACTANTS

Potassium nitrate, powdered, 8 cups (2 1/2 liters) (see Item 1, Ex. 3)

Sulfur, charcoal, powdered, 8 cups (2 1/2 liters)

Saltpre, powdered, 1/2 cup (1/8 liter)

Alcohol, 4 cups (1 1/2 liters) (ethanol, rubbing alcohol, etc.)

Water, 8 cups (2 1/2 liters)

Heat source

2 buckets - each 1 gallon (1 1/2 liters) capacity, at least one of which is heat resistant (metal, ceramic, etc.)

Flat wooden screening - at least 1 foot (30 cm) square

Large wooden stick

Clay, at least 1 foot (30 cm) square

NOTE: The above amounts will yield two pounds (907 grams) of black powder. However, only the ratios of the amounts of ingredients are important. Thus, for twice as much black powder, double all quantities used.

PROCEDURE

1. Place alcohol in one of the buckets.
2. Place potassium nitrate, charcoal, and saltpre in the heat resistant bucket. Add 1 cup water and mix thoroughly with wooden stick until all ingredients are dissolved.
3. Add remaining water (8 cups) to mixture. Place bucket on heat source and stir until small white crystals begin to form.

CAUTION: Do not heat mixture. Do not allow mixture to dry out. If dry in day, do no allow it to dry. If near liquid

4. Remove barrel from heat and pour mixture into cloth while stirring vigorously.



5. Let cloth mixture stand about 5 minutes. Strain mixture through cloth to obtain black powder. Discard liquid. Wrap cloth around black powder and squeeze to remove all excess liquid.



6. Place screening over dry bucket. Place material across all dry powder on screen and granulate by rubbing until enough screen



(NOTE: If granulated particles appear to stick together and change shape, immediately remove batch of powder and repeat steps 5 and 6)

7. Spread granulated black powder on flat dry surface on flat layer about 1/2 inch (2-3" max) to ferment. Allow to dry (no radiation or direct sunlight). This should be dried as soon as possible, preferably in one hour. The longer the drying period, the less effective the black powder.

CAUTION: Remove from heat to avoid granulated dry black powder to not ready for use.

PERMANENT ACID

Strong acid is used in the preparation of many explosives, incendiary weapons, and acid etching solutions. It may be prepared by distilling a mixture of potassium nitrate and concentrated sulfuric acid.

NATURAL SOURCES

Protoplasmic secretions of plants
Volcanic
Concentrated sulfuric acid used
to produce
It is used in the production of
other acids and salts
Petroleum byproducts
Sulfuric acid is used in the
production of
Paper (paper, chemicals, resins)
and for the production
of other acids

SOURCES

Strong acids
Sulfuric acid is used in
the production of
chemicals and
other acids

IMPORTANT: If sulfuric acid is distilled from a waste liquid, be sure to use a proper distillation apparatus. Do not use a glass container. Do not use a glass container.

NOTE: The amount of sulfuric acid produced in the reaction is the amount of potassium nitrate. Thus, for 1 kilogram of potassium nitrate, use 1 kilogram of potassium nitrate and 1 kilogram of concentrated sulfuric acid.

PROCEDURE

1. Place the potassium
nitrate in the flask. Add
sulfuric acid. Do not fill
the flask more than 1/2 full.
The acid must be heated.

Boiler or
flask, from
the 1/2
full



Part of
the flask
filled with
concentrated
sulfuric acid

CAUTION: Sulfuric acid will burn skin and destroy clothing. It may be spilled. Work in a well-ventilated area. Do not use a large quantity of sulfuric acid. Do not use a large quantity of sulfuric acid.

3. Wrap caput or tape around center of 3 bottles. Securely tape center of bottles together. Be sure bottles are flat against each other and that there are no air spaces.



4. Support bottles on sides or ends so that empty bottle is gliding down. One bottle containing water on that side used that is forward in restricting bottle will not run over other bottle.



5. Bottle lies flat on lying pad.

6. Clearly demonstrate restricting motion by turning this in and out. As red bottle begins to separate, pushdown on pad and water over empty restricting bottle. Water seal will begin to form in the restricting bottle.



CAUTION: Do not inhale or get hands containing material in it near others. As an added precaution, place hands in hot water (approximately 100°F) with soap or gloves. Then use water containers to protect skin & eye area.



4. Continue the cleanup process until no more soil/fumes are detected in the area and tested in the evening hours to see if air quality goes to safe cleanup levels and report steps 1 - 4.

CAUTION: Areas of dried fuel, oil and debris clinging to equipment, walls & floors with a large possibility of cancer. Fumes are also dangerous and should not be inhaled.

Wearers and should be kept away from all construction and should be kept in a sealed container to prevent exposure.

INITIATOR FOR DIRT EXPLOSION

The initiator which will initiate contains material to produce that explosion can be rapidly and easily constructed. This type of charge is ideal for the destruction of railroad wreck cars or houses or buildings.

MATERIAL REQUIRED:

A 5-gal. can, 2 in. (5 cm) diameter and 1-1/2 to 2-1/2 in. high. A 1/2 in. (1 cm) wooden plug can serve the purpose quite well.

Shooting cap

Explosive

Shrapnel (may be wire, nail shod, ballpoint pen or pencil)

Large nail, 4 in. (10 cm) long

Wooden plug - 1/2 in. (1 cm) diameter

Flour, gasoline and powder or shrapnel shrapnel

NOTE: (Flour, explosive (Comp. C-4, etc.) produce better explosion than most explosives (Comp. B, etc.)

PROCEDURE:

1. Using the nail, punch a hole through the side of the 5-gal. can 1/2 in. (1 cm) hole (1 to 1-1/2 in. from the bottom). Using a rotating and boring action, enlarge the hole until it will accommodate the shooting cap.



2. Place the wooden plug in the hole and position the end of the nail at the center of the can.

3. Place explosive into the can, being sure to surround the nail, until it is 1/4 inch (1 cm) from top of the can. Carefully remove the wooden plug.



4. Place the aluminum metal on top of the explosive.

5. Just before use, insert the blasting cap into the cavity made by the metal. The initiator is now ready for use.

(Cardboard Disk Insert For Holding Purposes)

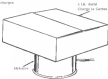
NOTE: If it is desired to carry the initiator some distance, metal insert may be pressed on top of the aluminum to insure against loss of material.



HOW TO USE

This generator will make either a 1 or 2 minute charge at two points at 1000, 1750 or 2500 inches of position at two points of false pressure aluminum. The solid materials may merely be retained in blocks or in selected sections. The generator may be placed in plastic-enclosed paper suit cases, plastic or glass bottles. The charges are placed directly on top of the initiator and the blasting cap is attached electrically as by line depending on the type of cap employed. This will develop a 1.44 volt test, minimum loading 14 x 12 x 12 in.

NOTE: For larger structures, use proportionately larger initiators and charges.



FERTILIZER EXPLOSIVE

An explosive mixture can be made from fertilizer grade ammonium nitrate and either fuel oil or a mixture of equal parts of motor oil and gasoline. When properly prepared, this explosive mixture can be detonated with a blasting cap.

MATERIALS REQUIRED

Ammonium nitrate (not less than 28% nitrogen)

Fuel oil or gasoline and motor oil (if 1 part)

Two flat boards, 14x16 inch size of these should be uniformly held by the hand, 1 x 1 x 4 and 10 x 10 x 1

Shovel or other container for mixing ingredients

One or steel pipe or bottle, tin can or heavy-walled cardboard tube
Blasting cap

Wrench (not > 1 1/4 in. diameter)

Spoon or similar measuring container

PROCEDURE

1. Scoop a handful of the ammonium nitrate on the large flat board and rub vigorously with the other board until the large particles are crushed like a very fine powder that looks like flour (approx. 14 cups)



NOTE: Proceed with Step 2 as soon as possible since the powder may take moisture from the air and become spoiled.

2. Mix one measure (cup, table-spoon, etc.) of fuel oil with 24 measures of the finely ground ammonium nitrate in a dry bucket or other suitable container and stir with the wooden rod. If fuel oil is not available, use one half measure of gasoline and one half measure of motor oil. There is a heavy-walled container used to hold the mix



2. Insert this mixture into an iron or steel pipe which has an end cap attached to one end. If a pipe is not available, you may use a dry tin can, a glass jar or a heavy-walled cardboard tube.



NOTE: Take care not to pump or shake the mixture in the pipe. If the mixture becomes tightly packed, one end will not be sufficient to initiate the explosive.

4. Insert blurring cap just beneath the surface of the explosive mix.



NOTE: Sealing the open end of the container will add to the effectiveness of the explosive.

Section 1
 Box 1

CARBON TEST - EXPLOSIVE

A black explosive mixture can be made from fine aluminum powder combined with carbon tetrachloride or tetrachloroethylene. This explosive can be detonated with a blasting cap.

MATERIALS NEEDED:

Fine aluminum blasting powder
 Carbon tetrachloride
 or
 tetrachloroethylene
 (blowing tool vessel)
 Mixing container (jar, beaker, etc.)
 Blasting container (cup, solder-
 iron, etc.)
 Storage container (jar, can, etc.)
 Blasting cap
 Pipe, one in dia

SOURCE:

Paint Store
 Pharmacy, or five-cent-
 grocery store
 Dry cleaners, Pharmacy

PROCEDURE:

1. Measure out two parts aluminum powder to one part carbon tetrachloride or tetrachloroethylene liquid into mixing container, adding liquid to powder while stirring with the wooden rod.

2. Stir until the mixture becomes the consistency of heavy syrup.



CAPTION Powder from the liquid was dangerous and should not be inhaled

3. Store explosive in a jar of water for water proof container until ready to use. The liquid in the mixture evaporates quickly when not covered.



NOTE: Mixture will detonate in this manner for a period of 10 hours.

HOW TO USE

1. Pour this mixture into an iron or steel pipe which has no end cap attached to one end. If a pipe is not available, you may use a dry tin can or a glass jar.



2. Insert Blasting cap just beneath the surface of the explosive mix.



NOTE: Covering the open end of the container will add to the effectiveness of the mixture.

FERTILIZER AS-AZ EXPLOSIVE

A dry explosive mixture can be made from ammonium nitrate fertilizer combined with fine aluminum powder. This explosive can be contained with a blasting cap.

MATERIALS REQUIRED:

Ammonium nitrate fertilizer
(not less than 37% nitrogen)
Fine aluminum burning powder
Measuring container (cup, bottle,
spoon, etc.)
Mixing container (bottle, bowl, can,
etc.)
Two flat boards (one should be
conveniently held in hand and
one very large, 1 x 6,
12 x 8 and 24 x 36 in.)
Storage container (jar, can, etc.)
Blasting cap
Woolen pad - 1/4 inch diameter
Pins, one or two

NOTICE:

Form or Fill Here

Print Here

PROCEDURE:

1. Method I - To obtain a low velocity explosive.
 - a. Use measuring container to measure four parts fertilizer to one part aluminum powder and pour into the mixing container.
(Example - 4 cups of fertilizer to 1 cup aluminum powder.)
 - b. Mix ingredients well with the woolen pad.
2. Method II - To obtain a much faster velocity explosive.
 - a. Spread a handful of a fine



NOTE - Proceed with step b below as soon as possible since the powder may take moisture from the air and become spoiled.

h. Follow steps a and b of Method 1.

1. Store the negative mixture in a waterproof container, such as glass jar, steel pail, etc., until ready to use.



HOW TO USE

Follow steps 1 and 4 of "How To Use" in Section 1, Mr. B.

"RED-ON-WHITE POWDER" PROPELLANT

"Red-on-White Powder" Propellant may be prepared in a single, safe manner. The formulation described below will result in approximately 1-1/8 pounds of powder. This is a small volume propellant and should only be used to respond with 1/2 lb. battle diameter or less, such as the Match One or the T. 88 Cannon, but not pistols.

MATERIAL REQUIRED:

Final amount (depends above or upon size)
 1 gallon metal bucket
 Measuring cup (if needed)
 Wooden spoon or rubber spoon
 Metal sheet or aluminum foil (at least 24 in. sq.)
 Flat rubber screen (at least 1 ft. sq.)
 Potassium nitrate (granulated) 1-1/2 cups
 White sugar (granulated) 2 cups
 Preheated ferric oxide (powd) 1/2 cup (if available)
 Clean water, 1-1/2 cups

PROCEDURE

1. Place the sugar, potassium nitrate, and water in the bucket. Heat with a low flame, stirring continuously until the sugar and potassium nitrate dissolve.



2. If available, add the ferric oxide (powd) to the solution. Increase the flame under the mixture until it boils gently.



NOTE: The mixture will retain the heat continuously.

3. Stir and scrape the bucket of the material until the mixture is reduced to one quarter of its original volume, then stir continuously.

4. As the water evaporates, the mixture will become thicker until it reaches the consistency of cooked breakfast cereal or instant mashed potatoes at this stage of dehydration. Remove the bucket from the heat source, and spread the mass on the metal sheet.



5. While the material cools, press it with the spine of a spoon in a crisscrossed pattern about 1 inch apart.



6. Allow the material to air dry, preferably in the sun. As it dries, remove it constantly about every 20 minutes to aid drying.

7. When the material has dried to a point where it is solid and will not get sticky to the touch, place a small spoonful on the screen. Rub the material back and forth against the screen mesh with spine or other flat object until the material is granulated into small even-like particles.



8. After granulation, return the material to the sun to dry completely.

MINIC ACID/STENOXYENE (WELLKOPFF®) EXPLOSIVE

An explosive reaction can be made from monochloroacetic acid and stenoxyene. It is a simple explosive to prepare. Just pour the monochloroacetic into the acid and stir.

NEEDFUL MATERIALS

Stenoxyene

Monochloroacetic (also known as
stenoxyene)

Acid resistant measuring
containers

Acid resistant mixing rod

Blasting cap

Wax

Steel pipe, seal cap and tape

Bottle or jar

RECIPE

First grade or 10% concentrated
stenoxyene (approx. 1.4%)

(Buy about half of mixture)

Chemical supply house

Substrate (used as solvent)

Glass, clay, etc.

NOTE: Prepare mixture just before use.

PROCEDURE

1. Add 1 volume (cup, quart, etc.)
monochloroacetic to 2 volumes
stenoxyene in bottle or jar.



2. Mix ingredients well by stirring
with acid resistant rod.



CAUTION: Work with bare skin and clothing smoking. If any is ignited, wipe off immediately with large amount of water. Never breathe in fumes, do not inhale fumes.

HOW TO USE

1. Mix blowing cap, pipe and seal cap
2. Thread seal cap into pipe



3. Pour solution into pipe



4. Insert seal cap blowing cap just beneath surface of solution

NOTE: Covering the open end of the pipe will add to the effectiveness of the capsule.

OPTIMIZED PROCEDURE FOR CELLULOSE/ACID EXPLOSIVES

An acid type explosive can be made from either acid and white paper or cotton cloth. This explosive can be detonated with a conventional M or any military blasting cap.

MATERIALS REQUIRED

SOURCE

Sulfuric Acid

Industrial acid processors, 98% concentrated (specific gravity of 1.84)

White unprinted, uncoated paper

Foldingrate also Section I, IN 4

Clean white cotton cloth

Paper towels, napkins

Acid resistant container

Clothing, plastic, etc.

Wax coated pipe or wire, ceramic pipe, glass (M, etc)

Aluminum foil or acid resistant material

Heavy-walled glass containers

Protective gloves

Fuel gloves

Blasting cap

Wax

PROCEDURE

1. Put on gloves.

1. Spread out a layer of paper or cloth on aluminum foil and sprinkle with sulfuric acid until thoroughly wetted. If aluminum foil is unavailable, use an acid resistant material (glass, ceramic or wood).



CAUTION: Acid will burn skin and destroy clothing. If any is spilled, wash it away with a large quantity of water. Do not inhale fumes.

3. Place another layer of paper or cloth on top of the acid-soaked sheet and repeat step 2 above. Repeat as often as necessary.



4. Roll up the aluminum foil containing the acid-soaked sheets and insert the roll into the acid-resistant container.



NOTE: If glass, ceramic or wooden trays are used, pick up sheets with two wooden sticks and load into container.

5. Place blinding cap.



6. Insert the blinding cap in the center of the rolled sheets. Allow 5 minutes before detonating the explosive.

NITRYL NITRAIC DYNAMITE

A moist explosive mixture can be made from sulfuric acid, nitric acid and methyl alcohol. This explosive can be detonated with a blasting cap.

INGREDIENTS:

Sulfuric acid

Nitric acid

Methyl alcohol

Syringes or syringe with glass tube

Large diameter glass (1 qt.) jar

Narrow glass jar (1 qt.)

Sawdust (fine woodchips, shredded paper, shredded sticks)

Cup

Pail (1 to 2 gallons)

Tongs

Wooden stick

Hard pipe with end cap

Blasting cap

Water

Trip

PROCEDURE:Clean battery acid tested acid
white fumes appearField grade nitric acid (contains
1, 2% H₂O or 98% conc
100 gr of 1-40)

Methanol

Wood alcohol (not denatured
alcohol)

Anti-freeze (non-permanent)

CAUTION:

1. Add 20-30 drops of sulfuric acid to 20-30 drops of nitric acid in the 1 quart jar.



CAUTION: Add with care also add denatured alcohol. If cap is spilled, flush it away with a large quantity of water. Do not inhale fumes.

3. Place the jar in the jar (3 to 5 gallons) filled with cold water on a stream and allow cold to cool.

4. Rapidly swirl the jar to create a whirlpool in the liquid without splashing while keeping the bottom portion of the jar in the water.

4. While continuously swirling, add the solution, 1/2 teaspoon at a time, 10-1/2 teaspoons of methyl alcohol, allowing solution to cool at least one minute between additions.



CAUTION: If there is a sudden increase in the amount of foam produced or if the solution suddenly turns much darker or begins to froth, dump solution in the water within 10 seconds. This will halt the reaction and prevent an explosion.

5. After the final addition of methyl alcohol, swirl for another 10 to 15 seconds.

6. Carefully pour the solution into one of the narrow glass jars. Allow jar to stand in water for approximately 5 minutes until the liquid separates.



7. With an eyedropper or syringe, remove top layer and carefully put into another narrow glass jar. This liquid is the explosive.

CAUTION: Explosive is shock sensitive.

9. Add an equal quantity of water to the explosive and water. Allow mixture to separate again as in step 8. The explosive is now the bottom layer.



10. Carefully remove the top layer with the syring(s) or syringe and discard.

11. Place one firmly pushed up of absorbent in the tray.

12. While stirring with the wooden stick, slowly add explosive until the mass is very damp but not wet enough to drip. Explosive is ready to use.



NOTE: If mixture becomes too wet, add more absorbent.

If storage of explosive is required, store in a sealed container in proper preparation.

CAUTION: Do not handle liquid explosive or allow to contact skin. If this happens, flush away immediately with large quantity of water. Flush, get, wash or dump out of way.

HOW TO USE

1. Spoon the mixture into an iron or steel pipe which has an end cap attached to one end. (If a pipe is not available, you may use a dry tin can or a glass jar.)



2. Insert blasting cap just beneath the surface of the explosive mix.



NOTE: Sealing the open end of the container will add to the effectiveness of the explosive.

UREA NITRATE EXPLOSIVE

Urea nitrate can be used as an explosive mixture. It is easy to prepare from urea, acid and water. It can be detonated with a blasting cap.

MATERIALS REQUIRED

Sulfuric acid, 98% conc. (1.0L)
(4 1/2 qt.)

Water
8 one gallon jars and acids-
resistant containers (glass,
clay, etc.)

Filament material

Aluminum powder (optional, or
if available)

Heat source

Measuring containers (cup and
spoon)

Wear

Goggles

Blasting cap

Steel pipe and/or cap(s)

SOURCE

Field grade (Section 1, No. 4)
or industrial metal
processes

Automobile (including battery)

Paper towel or deeply textured
cotton cloth (steel, steel,
etc.)

Black powder

NOTE: Prepare mixture just before use.

PROCEDURE

1. Add a large quantity of water
(fill cup) to approximately 1/200
the volume (1 cup) to one of the
containers over the heat source.



- Filter the urine into the other container through the filtering material to remove impurities.



- Slowly add 1/2 cup of acetic acid to the filtered urine, and let mixture stand for 1 hour.



CAUTION: Acid will burn skin and destroy clothing. If any is spilled, wash it away with a large quantity of water. Do not swallow liquid.

4. Filter mixture as in step 1. Press uric acid crystals well against the filter paper.



5. Wash the uric acid crystals by pouring water over it.
6. Remove uric acid crystals from the filtering material and allow to dry thoroughly (approximately 24 hours).

NOTE: The drying time can be reduced to two hours if a hot (not boiling) water bath is used. See Step 5 of Section 1, Box 11.

BOX 12/12B

1. Spread the uric acid crystals onto an iron or steel pipe which has an end cap threaded on one end.



2. Insert blocking cap just beneath the surface of the uric acid crystals.



NOTES: This explosive can be made more effective by mixing with aluminum powder (can be obtained in pellet streams in the ratio of 4 to 1). For example, mix 1 cup of aluminum powder with 4 cups of even stream.

Combining the open end of the container will add to the shrapnel stream of the explosive.

PREPARATION OF COPPER SULFATE (PENTAHYDRATE)

Copper sulfate is a required material for the preparation of TAOB (Section I, No. 28).

MATERIALS REQUIRED

Pieces of copper or copper wire

Sulfuric acid and nitric acid

Potassium nitrate (Section I, No. 1) or Nitric Acid, 85% conc. (2.48 sp. gr.) (Section I, No. 1)

Alcohol

Water

Two 1 pint jars or glasses, heat resistant

Paper towels

Fun

Woolen and/or silk

Superheated Steam (Section VI), No. 8

Cup

Container

Red marker

Thermos

PROCEDURE

1. Place 14 grams of copper pieces into one of the pint jars. Add 1 cup (249 milliliters) of sulfuric acid to the copper.



2. Add 12 grams of potassium nitrate or 1-1/2 teaspoons of nitric acid to the mixture.



NOTE: Mixture will give a product of greater purity.

3. Heat the mixture in a pot of simmering hot water bath until the boiling has ceased (approximately 1 hour). The mixture will turn to a blue color.

Hot Water
Bath



CATION: The above procedure will cause strong toxic fumes. Perform Step 3 in an open, well-ventilated area.

4. Pour the hot blue solution, hot onto the copper, into the other pint jar. Allow solution to cool at room temperature. Crystals will form at the bottom of the jar. Remove the immersed copper pieces in the final jar.

5. Carefully pour away the liquid from the crystals. Crystals crystals into a pan and wash with water, not in stock.



6. Add 1/2 cup (100 milliliters) of alcohol to the powder while stirring.



7. Filter the solution through a paper towel into a container to collect the crystals. Wash the crystals left on the paper towel three times, using 1/8 cup (250 milliliters) portions of alcohol each time.



8. Air dry the copper sulfate crystals for 2 hours.

NOTE: Drying time can be reduced to 1/2 hour by use of heat, not boiling, water bath (see Step 8).

DECLARATION OF RDX FROM C-4

RDX can be obtained from C-4 explosive with the use of gasoline. It can be used as a booster explosive for deminers (section VI, 24-15) or as a high explosive charge.

MATERIALS/TOOLS:

Gasoline

C-4 explosive

2 pint glass jars, wide mouth

Paper towels

Stirring rod (glass or wood)

Water

Ceramic or glass dish

Pan

Steel Screen

Tongs

Cup

Tape

(Optional) RDX can be air dried (instead).

PROCEDURE:

1. Place 1 1/2 teaspoons (15 grams) of C-4 explosive in one of the glass jars. Add 1 cup (240 milliliters) of gasoline.

RDX: These quantities can be increased to obtain more RDX. For example, use 2 gallons of gasoline per 1 cup of C-4.



3. Inverted over the C-4 with the end until the C-4 has broken down into small particles. Allow mixture to stand for 1/2 hour.



4. Stir the mixture again until a fine white powder remains on the bottom of the jar.

5. Filter the mixture through a paper towel into the other glass jar. Wash the particles collected on the paper towel with 1/2 cup (120-milliliters) of gasoline. Discard the water liquid.



6. Place the MXZ particles in a glass or ceramic dish. Put the dish in a pan of hot water, not boiling, and dry for a period of 1 hour.



NOTE: The MXZ particles may be dried for a period of 2 to 3 hours.

Section 1
Pg. 18**SALT-TETRANITRO-COPPER (S) CHLORATE**

Tetranitrocopper (S) chlorate is a primary explosive that can be made from sodium chlorate, copper sulfate and ammonia. This explosive is to be used with a secondary explosive such as picric acid (Section 1, the 14) or RDX (Section 1, the 14) in the fabrication of detonator elements, the 12.

RAW MATERIALS REQUIRED

Sodium chlorate

Copper sulfate

Ammonia hydroxide

Alcohol, 80% proof

Wax, soap, pitch, etc

Water

Bottle, narrow mouth (size of 1-1/2)

Bottle, wide mouth (same size)

Tubing rubber, copper, steel or
in narrow mouth bottle

Tongs

Impervious cloth

Steel pan

Paper towel

Pin

Tape

Cap

REMARKS

Section 1, the 12

Medicine

Wax tallow, hardware store

Section 1, the 14

Impervious, hardware store

Water purifying agent

Household ammonia

Boiling water

Section VII, Pg. 2

PROCEDURE

1. Measure 1/3 tongs (2-1/2) grams of sodium chlorate into a wide mouth bottle. Add 20 tongs of alcohol.



2. Place the wide mouth bottle in a pan of hot water. Add 1 teaspoon (4 grams) of copper sulfate to the water. Heat for a period of 20 minutes just under the boiling point and stir occasionally.



CUTION: Keep solution away from flame.

NOTE: Keep volume of solution constant by adding additional alcohol approximately every 20 minutes.

3. Remove solution from pan and allow to cool. Color of solution will change from blue to light green. Filter solution through a paper towel into another wide mouth bottle. Store solution until ready for step 4.

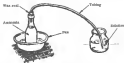


4. Add 1 cup (236 milliliters) of acetone to the narrow mouth bottle.



5. Place tubing into the neck of bottle so that it extends about 1-1/2 inches (4 cm) inside bottle. Seal tubing to bottle with wax, clay, putty, etc.

6. Place first end of tubing into the silver-oxide-silver-sulfide solution (step 3). Heat beaker containing solution to a pan of hot water, but not boiling, for approximately 10 minutes.



7. Bubble ammonia gas through the silver-oxide-silver-sulfide solution, approximately 10 minutes, until the color changes from light green to dark blue. (Continue bubbling for another 10 minutes.)

CATION: At this point the solution is a primary explosive. Move away from flame.

8. Remove the solution from the pan and reduce the volume to about 1/3 of its original volume by evaporating in the open air or in a stream of air.

NOTE: Pour solution into a flat container for faster evaporation.

9. Filter the solution through a paper towel into a wide mouth bottle to collect crystals. Wash crystals with 1 teaspoon of alcohol and set aside to dry overnight.



CATION: Explosive to shock and flame sensitive. Store in a capped container.

NOTE: The drying time can be reduced to 2 hours if a hot pan heating water bath is used.

NOTE

DDTC is a primary explosive that can be made from benzotriazylisocyanuric acid, hydrogen peroxide and citric acid. This explosive is to be used with a secondary explosive such as plastic and (Section I, the II) or RDX (Section I, the III) in the fabrication of detonators (Section II, the I).

MATERIAL REQUIRED

Benzotriazylisocyanuric acid

Hydrogen peroxide

Citric acid

Containers, bottles or glasses

Paper towels

Tongs

Pan

Water

Spoon

WARNING:

Do not touch under surface of
contaminated, benzotriazylisocyanuric acid

Army Issue Bulletin

IF hair stands (or stronger if
possible)

Drug stores or food stores
(“Your Hair”)

PROCEDURE

1 Measure 1/2 teaspoon of
hydrogen peroxide into a container

2 In 2 portions, dissolve 2-3/8
teaspoons of crushed benzotriazylisocyanuric acid in the peroxide



3 Keep the solution cool for (4)
minutes by placing container in a
pan of cold water



4 In 2 portions, dissolve 4-1/8 teaspoons of crushed citric acid in the
benzotriazylisocyanuric-peroxide solution

5. Permit solution to stand at room temperature until solid particles form at the bottom of test tube.



NOTE: Complete precipitation will take place in 5 to 24 hours.

CAUTION: At this point the mixture is a primary explosive. Keep away from flame.

6. Filter the mixture through a paper towel into a container to collect the solid particles.



7. Wash the solid particles collected in the paper towel with 2 teaspoons of water by pouring the water over them. Discard the liquid in the container.
8. Place these explosive particles in a container and allow to dry.

CAUTION: Handle dry explosive with great care. Do not scrape or scratch it roughly. Keep away from sparks or open flames. Store in cool, dry place.

PREPARATION OF SODIUM ACETATE AND LITHIUM (LEAD MONOXIDE)

Preparation of sodium acetate is needed to prepare TEST (Section 1, 5a. 1B), and (litarge) is required for the preparation of lead peroxide (Section 1, 5a. 5B).

MATERIAL REQUIRED-

Lead metal (small pieces or chips)
Potassium or sodium acetate
Alkali (sodium chloride)
Iron pipe with seal cap
Iron ball or iron cylinder
Paper towels
3 glass jars, wide mouth
Metal pan
Saw acetone (not methyl or blow
torch)
Impervious scale (Section 5C, 5a. 5)
Cup
Water
Pine

NOTES

Flaming supply stores
Field grade (Section 1, 5a. 5)
or Drug Store

PROCEDURE

1. Weigh 10 grams of lead and 4 grams of potassium or sodium acetate in a pan. Place the mixture in the iron pipe.

2. Heat iron pipe in a bath of hot water or with blow torch for 30 minutes to 1 hour. (Mixture will change to a yellow color.)



3. Remove the test pipe from the test source and allow to cool. Strip out the yellow material formed in the test pipe and place the chips in the glass jar.



4. Add 1/2 cup (125 milliliters) of methyl alcohol to the chips.



5. Heat the glass jar containing the mixture in a hot water bath for approximately 2 hours. When there is a noticeable reaction (brown chips and alcohol) solution will turn darker.



6. Place the mixture through a paper towel into the other glass jar. The material left on the paper towel is liquid ammonia.



7. Remove the liquid ammonia and wash it twice through a paper towel using 1/2 cup (125 milliliters) of hot water each time. Air dry before using.

8. Place the jar with the liquid from Step 6 in a hot water bath (as in Step 6) and heat until the alcohol has evaporated. The powder remaining in the jar after evaporation is potassium or sodium azide.

NOTE: Azides has a strong tendency to decompose from the glass jar and should be stored in a closed container.

BOOP

BOOP is a primary explosive used in the fabrication of detonators (Section VI, No. 15). It is to be used with a booster explosive such as picric acid (Section I, No. 19) or RDX (Section I, No. 18).

MATERIAL REQUIRED

Pyrite and
Fluorapatite or sulfur
Gas (acetylene, hydrogen)
Sulfuric acid, diluted
Potassium or sodium nitrate
Water
3 glass vials, lead lined,
 (3/4oz)
Burning rod (glass or wood)
Improvised scale
Paper towels
Tongs
Test tubes
Dropper
Bath burner
Container
Tape

REAGENTS

Section I, No. 18

Water-vacuum technique
Section I, No. 19

Section VI, No. 6

PROCEDURE

1. In two of the glass vials, mix 1/2 gram of gas with 1 test-tube (or milliliter) of water.



2. Dissolve 1 teaspoon (3 grams) of picric acid in the water-gas solution. (Acid must be ready for step 3.)



3. Place 1/8 teaspoon (2 milliliters) of water in the other glass cup. Add 1/8 teaspoon (2-1/2 grams) of sulfur and 1/8 teaspoon (2-1/2 grams) of lye in the water.

4. Heat solution over heat source until color turns dark red. Stir more and allow solution to cool.



5. In three portions, add this sulfur-lye solution to the plastic acid-lye solution (Step 3), stir while pouring. Allow solution to cool.



6. Filter the mixture through a paper towel into a container. Small red particles will collect on the paper. Discard the liquid in the container.



7. Dissolve the red particles in 1/4 cup (60 milliliters) of boiling water.



7. Remove and filter the solution through a paper towel as in step 6. Discard the particles left on the paper.

8. Using a graduated cylinder, slowly add the sulfuric acid to the filtered solution until it turns orange-brown.



9. Add 1/2 teaspoon (1.5-1.7 grams) more of sulfuric acid to the solution. Allow the solution to cool to room temperature.

10. In a separate container, dissolve 1/2 teaspoon (1.2 grams) of potassium or sodium nitrate in 1/2 cup (125 milliliters) of water.

11. Add this solution in one portion, while stirring, to the orange-brown solution. Allow the solution to stand for 10 minutes. The color here will turn light brown.

CARTON: At this point the solution is a primary explosive. Keep away from flames.

12. Filter the solution through a paper towel. Wash the particles left on the paper with 4 teaspoons (12 milliliters) of water.



13. Allow the particles to dry (approx. 10 hours).

CARTON: Explosive is shock and flame sensitive. Store separate in a secure container.

NOTE: The drying time can be reduced to 3 hours if a hot (not boiling) water bath is used. See Section 1.10. 10.

PREPARATION OF LEAD PICTATE

Lead pictate is used as a primary explosive in the fabrication of detonators (Section 22, No. 23). It is to be used with a secondary explosive such as picric acid (Section 1, No. 24) or RDX (Section 1, No. 25).

MATERIALS REQUIRED

Leads (Lead monoxide)

Picric Acid

Wood alcohol (methanol)

Woolen or plastic rod

Dish or mortar (china or glass)

Testpaper

Impure acid (acid)

Indicator

Flu. gas

Heat source (optional)

Water (optional)

SOURCE

Section 1, No. 14 or glassing supplies

Section 1, No. 22

Paint removers, some methanol

Section 22, No. 1

PROCEDURE

1. Weigh 3 grams each of picric acid and lead monoxide. Place each in a separate container.

2. Place 3 teaspoons (15 milliliters) of the alcohol in a dish. Add the picric acid to the alcohol and stir with the woolen or plastic rod.



3. Add the lead monoxide to the mixture while stirring.

CAPTION: At this point the solution is a primary explosive. Keep away from flame.

4. Continue stirring the mixture until the alcohol has evaporated. The mixture will suddenly thicken.

4. Stir mixture continuously (stirring helps from burning) until a powder is formed. A few lumps will remain.



CUTION: Be very careful of dry material forming on the inside of the container.

5. Spread this powdered mixture, the liquid provided, in a flat pan for air dry.



NOTE: If possible, dry the mixture in a hot, not boiling, water bath for a period of 2 hours.



PREPARATION OF PICTIC ACID FROM APTICIN

Pictic acid can be used as a blowing explosive in detectors (Section TL, Sta. 12), a high explosive charge, or as an intermediate in producing lead picrate (Section I, Sta. 10) or DDPF (Section I, Sta. 10).

MATERIAL REQUIRED

Apticin tablets (2 grains per tablet)
 Alcohol, 95% pure
 Sulfuric acid, concentrated, (battery
 acid - test with white fumes
 appear)
 Picric acid (Section I, Sta. 2)
 Water
 Paper towels
 Chisel (cut) 1 pint
 Bell glass or wood
 Glass container
 Ceramic or glass dish
 Cup
 Test paper
 Filter paper
 Funnel
 Seal source
 Tape

PROCEDURE

1. Crush 10 apticin tablets in a glass container. Add 2 teaspoon of water and work into a paste.



1. Add approximately 1/3 to 1/2 cup of alcohol (95% ethanol) to the capsule parts, stir while pouring.



2. Filter the alcohol-capsule solution through a paper towel into another glass container. Discard the solid left on the paper towel.



3. Pour the filtered solution into a ceramic or glass dish.

4. Evaporate the alcohol and water from the solution by placing the dish into a pan of hot water. Water powder will remain in the dish after evaporation.



NOTE: Water in pan should be at hot bath temperature, not boiling (approximately 140° to 145°F). It should not burn the hands.

6. Pour 1/2 cup (66 milliliters) of concentrated sulfuric acid into a second jar. Add the white powder to the sulfuric acid.



7. Heat second jar of sulfuric acid in a pan of circulating hot water bath for 15 minutes. Then remove jar from the bath. Solution will turn to a yellow-orange color.



8. Add 2 level teaspoons (10 grams) of potassium nitrate to three portions to the yellow-orange solution. Stir vigorously during additions. Solution will turn red, and then back to a yellow-orange color.



9. Allow the solution to cool to ambient or room temperature while stirring occasionally.

10. Slowly pour the solution, while stirring, into 1 L of tap-water (Note: if cold water used allow to cool)



11. Filter the solution through a paper towel into a glass container. Light yellow particles will collect on the paper towel.

12. Wash the light yellow particles with 5 milligrams (5 milliliters) of water. Decant the water liquid to the container.



13. Place particles in separate dish and set in a hot-water bath, as in step 4, for 2 hours.

DIETHYLENEDITHIOCARBONATE

Diethylenedithiocarbamate is used as a primary reagent in the identification of substances (Section 15, 16, 18). It can be made in the field from silver nitrate, nitric acid, sodium carbonate, and water.

MATERIALS NEEDED:

Silver nitrate (99% pure) (Section 1, 16, 18)

Silver metal (silver coin, about 1/8 to diameter)

Diethylenedithiocarbamate or sodium diethylenedithiocarbamate

Rubber and glass tubing (approx. 1/8 in. inside diameter)

Filter towels

Small reaction bottles or vials (e.g., 1 to 2 quart capacity, and one each to fill. (Push hole in each to fit tubing.)

Transfer instrument, stainless steel or non-reacting or equivalent material

Glass container

Heat source

Long narrow jar (lime jar)

Tube

Water

Alcohol

PROCEDURE:

1. Dissolve 1-1/4 teaspoon of silver nitrate with 1-1/2 teaspoon of water in a glass container by adding the acid to the water.



2. Dissolve a silver coin (a silver dollar) in the diluted silver nitrate. The silver will turn to a green color.

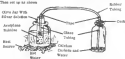
NOTE: It may be necessary to warm the container to completely dissolve the silver coin.

CAUTION: Acid will burn skin and destroy clothing. If eye is affected, wash it away with a large quantity of water. Do not inhale fumes.

3. Pour solution into a long narrow culture jar and place it in a bottle of hot water. Crystals will form in the solution, heat until crystals disappear.



4. While still heating and after crystals have disappeared, place 10 drops of calcium nitrate in another glass bottle and add 1 teaspoon of water. After the reaction has started add another teaspoon of water. Then set up as above.



5. Bubble acetylene through the solution for 5 to 10 minutes. A brown vapor will be given off and white flakes will appear in the silver solution.

6. Remove the silver solution from the heat source and allow it to cool. Filter the solution through a paper towel into a glass container. Green crystals will collect on the paper.



7. Wash the residue collected on the paper towel with 10 teaspoons of alcohol. The solid material will turn white while the solvent in the container will have a green color.



8. Place the white solid material on a clean paper towel to dry.

CAUTION Handle dry explosive with great care. Do not scrape or scratch it roughly. Keep away from sparks or open flames. Store in cool, dry place.

BOTTLE DELICATE

Delicate chlorine is a strong oxidizer used in the manufacture of explosives. It can be used in place of potassium chlorate (see Section 1, Ex. 1).

MATERIALS REQUIRED

2 inches or less wire (1 in. diameter or 1/2 in. long)
Salt or, cream tartar
Sulfuric acid, diluted
Water
Wool
1 wire, (16 gauge cloth in diameter approx.), 1 ft. long, twisted
Gasoline
1 gallon glass jar, wide mouth (1 in. diameter or 1 in. high approx.)
Raisins
Spring
Tongs
Tongs
Cap
Heavy cloth
Kettle
Large flat pan or tray

PROCEDURE

1. Mix 1/2 cup of salt into the one gallon glass jar with 1/2 liter (1 quart) of water.

FINISH

1/2 cup saltwater (2-1/2 in. diameter or 1 in. long) or plastic supply store
Strong store or some
Water bottle battery



2. Add 1 teaspoon of battery acid to the solution and stir vigorously for 5 minutes.

Hot Water Solution



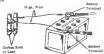
3. Strip about 4 inches of insulation from both ends of the 2 wires.



4. With knife and pliers shape 4 strips of wood 1/2 x 1/8 x 1-1/2. The flat wood strips in the lead or carbon rods so that they are 1-1/2 inches apart.



5. Connect the rods to the battery in a meter vehicle with the insulated wire.



6. Withdraw 4-1/2 in. of the rods into the salt water solution.



7. With glass in vertical position, place the rubber engine. Depress the accelerator approximately 1/3 of the full travel.

8. Run the engine with the accelerator in this position for 5 hours, then, shut it down 2 hours.

9. Repeat this cycle for a total of 40 hours while maintaining the level of the acid-salt water solution in the glass jar.

CARTON: This development employs cellulosics which may be dangerous to personnel. Do not touch bare wire leads while engine is running.

10. Shut off the engine. Remove the rods from the glass jar and disconnect wire leads from the battery.

11. Filter the solution through the heavy cloth into a flat pan or tray, leaving the solution at the bottom of the glass jar.



12. Allow the water in the filtered solution to evaporate at room temperature approx. 24 hours. The residue is approximately 40% or more sodium chlorate which is pure enough to be used as an explosive ingredient.

MERCURY FILMSTRIPS

Mercury Filmstrips is used as a primary explosive in the fabrication of detonators (Section VI, No. 13). It is to be used with a booster explosive such as plastic cord (Section I, No. 33) or SOD (Section I, No. 15).

MATERIALS REQUIRED

White acid, HCl conc. (3.48

oz. per lb.)

Mercury

Strips (grade) selected (HCl)

Filtering material

Teaspoon measure (1/8, 1/4, and
1/2 teaspoon capacity) - aluminum,
stainless steel or non-corrosive

Real source

Glass wooden stick

Glass vial

Glass container

Spig

Strips

NOTES

Field grade (Section I, No. 43) or

Industrial acid, peracetic

Thermomax, Mercury catalyst,
oil water tubes

Paper strips

PROCEDURE

1. Dilute 8 teaspoons of white acid with 8-1/2 teaspoons of clean water in a glass container by adding the acid to the water.

2. Dissolve 1/8 teaspoon of mercury in the dilute white acid. This will permit much wet firing.



(NOTE) It may be necessary to add more, one drop at a time, to the mercury-dilute solution in order to effect reaction.

CAUTION: Add acid from stock test solution carefully. If any is spilled, wash it away with a large quantity of water. Do not inhale fumes.

3. Warm 25 teaspoons of the alcohol in a container until the alcohol boils. Warm to the inside of the vessel.



4. Pour the metal-salt solution to the warm alcohol. Reaction should start in less than 5 minutes. Some white fumes will be given off during reaction. As time passes, the fumes will become less dense. Allow 15 to 20 minutes for complete reaction. Phosphorus will appear as fumes.



CAUTION: This reaction generates large quantities of toxic, flammable fumes. The process must be conducted outdoors or in a well-ventilated area, away from people or open flames. Do not touch fumes.

5. Filter the solution through a paper towel into a container. Crystals (big stuff) in the side of the container. Then, tilt and squirt water down the sides of the container until all the material collects on the filter paper.



6. Wash the crystals with three sprays of ethyl alcohol



7. Allow these mercury fulminate crystals to air dry

CAUTION: Handle dry explosives with great care. Do not scrape or handle too roughly. Keep away from sparks or open flames. Store in cool, dry place.

ROCKET COLORATE AND EXPLOSION ON ALUMINUM EXPLOSIVE

An explosive reaction can be made from sodium chlorate combined with granular sugar, or aluminum powder. This explosive can be detonated with a No. 8 commercial or a Military J-1 blasting cap.

MATERIALS REQUIRED:

Sodium chlorate

Granular sugar

Aluminum powder

Wooden rod or stick

Bottle or jar

Blasting cap

Steel pipe (flashed at one end), rod cap
and pipe

Wax

Blowring container (cup, spoon, etc.)

EXCEL:

Section 1, 5a, 5b

Fossil stone

Fossil stone

PROCEDURE

1. Add three volumes (cup, quart, etc.) sodium chlorate to one volume aluminum, or two granular sugar, to bottle or jar



2. Mix ingredients well by stirring with the wooden rod or stick.



HOW TO USE

1. Wear blasting cap, pipe and end cap.
2. Thread end cap onto pipe.

3. Pour mixture into pipe.



4. Insert and light blasting cap (just beneath surface of mixture).



NOTE: Cracking the open end of the pipe will add to the effectiveness of the explosive.

PPE BOMB CHARGE

Bomb grenades can be made from a piece of iron pipe. The filler can be plastic or granular military explosive, impromptu explosive or propelled from charges or small arms ammunition.

MATERIALS REQUIRED

Iron pipe, threaded ends 1 1/2" Power Pipe Blasting Cap
to 2 diam. 1" to 2" long
Two M1 iron pipe caps
Explosive or propelled
Mushrooms blasting cap.
(Granular or military)
Fork cord
Steel drill
Flare

**PROCEDURE**

1. Place blasting cap on one end of base cord and crimp with pliers.

NOTE: To find out how long the base cord should be, check the time it takes a known length to burn. M1 M1 bullet burns in 20 seconds. A 4-inch cord will ignite the grenade in 25 seconds.



2. Insert pipe cap to one end of pipe. Place base cord with blasting cap into the opposite end so that the blasting cap is near the center of the pipe.

NOTE: If plastic explosive is to be used, fill pipe before inserting blasting cap. Push it toward center of the explosive to make a hole and then insert the blasting cap.



3. Place explosive or propellant into pipe a little bit at a time. Tap the base of the pipe frequently to settle filler.



4. Drill a hole in the center of the constructed pipe cap large enough for the fuse cord to pass through.



5. Wipe pipe threads to remove any filled material.

Slide the drilled pipe cap over the fuse and screw headtight onto the pipe.



MAIL GRENADE

Effective fragmentation grenades can be made from a block of TNT or other blasting explosive and nails.

MATERIALS REQUIRED:

Block of TNT or other blasting explosive
Nails
Non-Electric Military Blasting cap
Fume Cord
Tape, string, wire or glue



PROCEDURE:

1. If an explosive charge other than a standard TNT block is used, make a hole in the center of the charge for inserting the blasting cap. TNT can be drilled with relative safety. With plastic explosives, a hole can be made by pressing a round stick into the center of the charge. The hole should be deep enough that the blasting cap is totally within the explosive.



2. Tape, string or glue one or two rows of closely packed nails to sides of explosive block. Nails should completely cover the four surfaces of the block.



3. Place blasting cap on one end of the fume cord and clamp with glue or.

BLASTING CAP FUME CORD

NOTE: In that you have used the fume cord allowed to, check the time it takes a burning length to burn: 10 ft burns 20 sec; 10 ft burns for 30 seconds, a 10 second delay will require a 5 ft cord. (20 sec/10 ft)



4. Insert the blasting cap in the hole in the block of explosive. Tap it in the hole and securely in place so that it will not fall out when the ground is thrown.



ALTERNATE USE:

An effective directional anti-personnel mine can be made by placing wires up only one side of the explosive block. For this mine, an electric blasting cap can be used.



WIRE BOTTLE CORE CHARGE

This core charge will penetrate 3 to 4 inches of armor. Placed on an engine or engine compartment it will destroy a tank or other vehicle.

MATERIALS REQUIRED:

Glass wine bottle with false bottom in one stop-off
Plastic or combustible explosive
Blasting cap
Gasoline or kerosene (small amount)
String
Adhesive tape

PROCEDURE:

1. Soak a piece of string in gasoline or kerosene. Double wrap this string around the wine bottle approximately 3 in. of L.S. and above the top of the cone.

NOTE: A small amount of motor oil added to the gasoline or kerosene will improve results.

2. Light the string and allow to burn for 1 to 2 minutes. Then plunge the bottle into cold water to crack the bottle. The top half can now be easily removed and discarded.

3. If plastic explosive is used:
(a) pack explosive into the bottle a little at a time compressing with a wooden rod. Fill the bottle to the top.

(b) press a 1/4 in. wooden dowel 1/2 in. (dowel) into the middle of the top of the explosive charge to form a hole for the blasting cap.

4. If TNT or other suitable explosive is used:

(a) loosely explosive into small pieces using a wooden mallet or non-sparking metal tool. Place pieces in a tin can.



Wine Bottle



Between this of bottle cap

(g) Suspend this can in a larger container which is partly filled with water. A steel wire or stick pointed through the smaller can will allow you to do this.

CAUTION: The inner can will not rise to the bottom of the larger container.



(h) Heat the container on a portable hot plate or other heat source. Heat the explosive frequently with a wooden stick while it is melting.

CAUTION: They are well vented while melting explosive. Flames may be produced.

(i) When all the explosive has melted, remove the inner can(s) and stir the molten explosive until it begins to thicken. During this time the bottom half of the wire bottle should be placed in the container of hot water. That will give heat the bottle so that it will not crack when the explosive is poured.

(j) Remove the bottle from hot water and dry the outside. Pour molten explosive into the bottle and allow to cool. The reason which forms on top of the charge during cooling should be broken with a wooden stick and more explosive added. Do this as often as necessary until the bottle is filled to the top.

(k) When explosive has completely hardened, bore a hole for the blasting cap in the middle of the top of the charge about 1/4 in. (6mm) deep.

HOW TO USE

1. When blasting cap is in the hole in the top of the charge, if an electric cap is used to wire cap is clipped around base and fast in long enough to provide safe delay.



2. Place the charge so that the bottom is 2 to 4 in. (50 to 100 mm) from the target. This can be done by taping high to the charge or use other convenient means as long as there is nothing between the hole of the charge and the target.



3. If electric cap is used, connect blasting cap wires to firing circuit.



NOTE: The effectiveness of this charge can be increased by placing it inside a can. Use of standard container and packing head of drill between the charge and the container.

GRANADE-THE CAN LAMP LIGHT

This device can be used as a hand mine that will explode when the trigger wire is pulled.

MATERIALS REQUIRED:

Steel granules having wide safety factor

Match container, open at one end, that is just large enough to fit over granules and the safety lever-pin out of proper view to maintain firing string or wire

NOTE: The container must be of such a size that, when the granules is placed in it and the safety pin removed, the safety will prevent the safety lever from top being open. One end must be completely open.

PROCEDURE:

1. Insert one piece of string to the closed end of container, making a strong connection. This can be done by pushing it into the cap, looping the string through there, and tying a knot.



2. The free end of that string is loop, under, through, and

3. Further another length of string to the granules such that it comes together with the fastening of the upper mechanism of the granules.



4. Insert granules into container



4. Lay three lengths of spring around pole and fasten to poles, trees, etc. The spring should remain wet.



HOW TO USE

1. Carefully withdraw spring pin by pulling on ring. Be sure spring never is compressed during this operation. Grounds will function in normal manner when toby wire is pulled.

NOTE: In areas where concealment is possible, a greater effect may be obtained by suspending the grounds several feet above ground, as illustrated below.



WINDLASS SCRAP ASSEMBLY

A directional charged launcher that can be placed in the path of advancing troops.

**MATERIAL REQUIRED:**

Iron pipe approximately 1 ft. (1 meter) long and 2 in. to 4 in. (2 to

10 cm) in diameter and threaded on at least one end. Shrapnel
artillery markings case may also be used.

Flanged cap to fit pipe.

Black powder or shrapnel artillery propellant about 1/2 lb. (100 gram)
total.

Electrical igniter commercial RDX or improved igniter, Section
VI, Pa. 1. Safety or improved fuse may also be used.

Small stones about 1 to 1 1/2 in (2-3 cm) in diameter or small steel scrap,
about 1 to 100 gram total.

Bags for stuffing, each about 10 in. by 10 in. (10 cm x 10 cm).

Paper or bag.

Battery and wire.

Stick (non-metallic).

Note: Do not use pipe too far inside or there

PROCEDURE

1. Remove threaded cap into pipe.

2. Place propellant and igniter in paper or rag and tie package with string so contents will not fall out.



3. Insert packaged propellant and igniter into pipe until package seats against threaded cap leaving firing leads extending from open end of pipe.

4. Seal rag with it to about 4 in. (10-15 cm) long and the same diameter as pipe. Insert rag wedding against packaged propellant/igniter. With caution, push tightly into pipe.

5. Insert stone and/or wrap metal into pipe.

6. Insert second piece of rag wedding against stone and/or metal setting flush tightly as follows.

**HOW TO USE**

1.bury pipe in ground with open end facing the expected path of the enemy. The open end may be covered with cardboard and a thin layer of dirt or leaves for camouflage.



5. Connect Safety leads to battery and switch. Mine can be remotely fired when needed or attached to trip device placed in path of advancing troops.

NOTE: A NON-ELECTRICAL ignition system can be substituted for the electrical ignition system as follows:

1. Follow above procedure, substituting safety fuse for ignition.
2. Light safety fuse when ready to fire.



COKE BOTTLE SHAPER CHARGE

This shaped charge will penetrate 1 in. (2-1/2 in.) of armor. It will shatter a vehicle if placed on the engine or engine compartment.

MATERIALS REQUIRED:

One Coke bottle 1-1/2 in. dia.

Plastic or combustible explosive about

1 lb. (see pic)

Shooting ring

Steel cylinder open at both ends about

4 1/2 in. (2 1/2 in. long and 2 in. of end inside

diameter). Cylinder should be heavy

walled for best results.

Plug to fit mouth of coke bottle

(large metal wood paper etc.)

Steel mesh rod about 1 1/2 in. of mesh to

diameter and 1 in. (20 cm) or more

in length.

Tags or string

4 lbs. case of combustible explosive is used plus Section II Ex. 3.

NOTE: Cylinder may be reinforced, plastic etc. if combustible explosive is used.

PROCEDURE:

1. Place plug in mouth of bottle.



2. Place cylinder over top of bottle and bottom of cylinder rests on wooden part of bottle. Tape cylinder to bottle. Gun powder should be stored on top of bottle.



3. If plastic explosives is used:

- a. Place explosive in cylinder
a hole of a size matching with
rod used in cylinder to fit



- b. Press the rod down 1/4 in. (1) and turn the middle of the top of
the explosive charge to form a hole for the blasting cap



4. If mastic explosive is used,
follow procedure of Wire Rods
Core Charge, Section 2, for 3.
Step 4, as paragraph 1



WIRE RODS

Initial 1. Extended Warming up is used

- i. Place blasting cap in hole in top of explosive

Caution: Do not warm blasting cap with charge in ready to be
detonated.

5. Place bottom of Cuts Bottle flush against the target. If target is not flat and horizontal, flatten bottle to target to any convenient extent, such as by placing tape or string around target and top of bottle. Bottom of bottle now is closed off.



CAUTION Be sure that base of bottle is flush against target and that there is nothing between the target and the base of the bottle.

6. Connect leads from blowing cap to blowing circuit.

Method B. Flame-Charged Blowing cap in use.

1. (Bring cap around face.)

CAUTION Be sure there is long enough to provide a safe setup.

2. Follow steps 1, 5, and CAUTION of Method A.

3. Light face when ready to fire.

CYLINDRICAL CUFFS SHAPER CHARGE

A shaped charge can be made from various pipe. It will penetrate 1 ft to 1 1/2 ft of steel, penetrating 1/2 inch to 1-1/2 inch of steel to diameter.

MATERIALS REQUIRED

One or more pipe: 1/2 inch to 1 inch to 1 1/2 inch to diameter and 1/2 to 4 inch to length

Steel pipe: 1/2 inch to 1 inch to diameter and 1-1/2 inch to 1-1/2 inch long. Open at both ends. (The wall of the pipe should be uniform thickness.)

Shaping tool

Explosive material: 1/2 inch to 1 inch to diameter

Explosive material: explosive

Explosive material: explosive

Steel pipe

Steel pipe

Explosive material: explosive

CONSTRUCTION

1. If possible explosive is used

- Place largest pipe in the surface (steel pipe) and shape explosive into pipe. (Leave approximately 1/2 inch to 1 inch space of pipe)



- Push out one piece of explosive. (Leave hole in explosive to diameter and length of small pipe)

- Insert small pipe into hole



WARNING: Do not allow contact of metal between explosive and small pipe. (Leave explosive around pipe by hand if necessary)

- b. Make sure that there is 1/4 in. of empty space above small pipe. Remove explosive if necessary.



- c. Turn pipe upside down and push out 1/4 in. (1-1/4 in. max) center of explosive that will explode to form a hole for the blasting cap.

CAUTION: Do not insert blasting cap or hole until ready to fire shaped charge.

- b. If COT or other outside explosive is used:

- a. Follow procedure, Section III, Div. 4, Step 4, Part 4, 5, 6, in stating CAUTION.
- b. When all the explosive has melted, remove the impact container and add the hollow explosive until it begins to thicken.

- c. Place large pipe on the surface. Place pipes after one pipe used it is 1-1/4 in. or less from the top.



- d. Place small pipe in center of large pipe so that it goes on top of explosive. Holding small pipe in place, pour explosive around small pipe until explosive is 1/4 in. above base of large pipe.



- e. Allow explosive to cool. Break small that forms on top of the charge being setting with wooden stick and add more explosive after the hole is about as necessary until explosive is 1/4 in. (1-1/4 in. max) from top.

- When explosion has been greatly contained, turn pipe upside down and turn it left for the blasting cap to the middle of the top of the charge (don't 1/2 in. or 1/4 in. less).



HOW TO USE

Method 1 - If electrical blasting cap is used

- Place blasting cap in hole made for it

CAUTION Be sure when placing cap and charge is ready to fire

- Place other end of pipe flush against the target. Fasten pipe to target by any convenient means, such as by placing tape or string around target and line of pipe. (2) Target is set flat and horizontal



CAUTION Be sure that base of pipe is flush against target and that there is nothing between the target and the base of the pipe

- Connect leads from blasting cap to firing circuit

Method 2 - If non-electrical blasting cap is used

- Charge cap around line

CAUTION Be sure line is long enough to provide a safe delay

- Follow Steps 1, 2, and CAUTION of Method 1

- Light line when ready to fire

UNLINED CYLINDRICAL CAVITY SHAPED CHARGE

A modified shaped charge can be made from common pipe. It will penetrate 1 in. (2.54 cm) of steel, producing a hole 1 1/2 to 2 (38 to 51 mm) in diameter.

MATERIALS REQUIRED

Iron or steel pipe, 3 to 3 1/2 in. (8 to 9.14 cm) in diameter and 8 to 4 in. (20 to 102 cm) long

Blowing cap

Non-metallic rod (plastic, wood, cardboard, etc.) 1 1/4 in. (31 mm) in diameter

Plastic or suitable explosive

Non-metallic fuel or tubes, at least 2-4 (51 to 102 mm) long and 1/8 to 3/8 in. (3 to 9.5 mm) in diameter

Metal rods of different sizes

Brick or wire

Rail section

If suitable explosive is used

PROCEDURE

1. If plastic explosive is used

- a. Place pipe on flat surface. (Fig. 1-1) and pump explosive into pipe. Leave approximately 1/2 in. (1.27 cm) space at top.



- b. Push rod into center of explosive. (See Fig. 1-2) to 1 1/4 in. (31.75 mm) and to the center. Leave 1/8 in. (3 mm) space at top. Secure or plaster if necessary.



- c. Then pipe sinks down and grade 1/4 in. (6 mm) diameter rod 1/2 in. (12.7 mm) wide over top of pipe until all explosive is below a hole for the blasting cap.



CAUTION: Do not insert blasting cap until ready for the shaped charge.

- d. If TNT or other variable explosive is used:

- i. Follow procedure, Section II, No. 3 Step 4, Parts a, b, c, including **CAUTION**.
- ii. When all the explosive has settled, remove the lower container and stir the mixture-explosive until it begins to thicken.

- e. Place pipe on flat surface. Pour explosive into pipe until explosive is 1-1/2 in. (38 mm) from top.



- f. Place taper rod or tube in center of pipe so that it makes a top of explosive. Slide rod or tube in place and pour explosive into pipe around it until explosive is 1/4 in. (6 mm) from top. If rod or tube, remove bottom explosive tapered completely. However, tube may be left in hardened explosive.



- g. Allow explosive to cool. Break crust that forms on top of the charge during cooling with a wooden stick and add more explosive. Do this as often as necessary until explosive is 1/4 in. (6 mm) from top.

2. When explosive has completely hardened, turn pipe upside down and leave a hole for the blasting cap in the middle of the top of the charge about 1/2 in. (1 1/4 inch deep).



HOW TO USE

Method I If electrical blasting cap is used

1. Place blasting cap in hole made for it

CAUTION Be sure that blasting cap seat charge is ready to fire

2. Place other end of pipe flush against the target. Push pipe to target by any convenient means, such as by pulling rope or using second charge and top of pipe of target is not flat and horizontal



CAUTION Be sure that base of pipe is flush against target and that there is nothing between the target and the base of the pipe

3. Connect leads from blasting cap to firing circuit

Method II If non electrical blasting cap is used

1. Charge cap around hole

CAUTION Be sure there is long enough to provide a safe delay

2. Follow Steps 2, 3, and **CAUTION** of Method I
3. Light fuse when ready to fire

FUNNEL SHAPED CHARGE

An effective shaped charge can be made using various types of commercial fuzes. See table for performance capabilities.

MATERIALS/INSTRUCTIONS

Container (cans or beer can, etc.), approximately 3-1/2 in. diameter x 8 in. long (3 1/4 in. x 10 1/2 in.)

Funnel(s) (glass, steel, or aluminum) 3-1/2 in. (3-1/2 in.) in diameter. Wooden rod or stick, 1/4 in. Ø max. in diameter.

Tube

Strapping tape (plasticized) or non-plasticized

Many cutting edges

Explosive

PREPARATION

1. Remove the top and bottom from can and discard.

2. Cut off and shape away the spout of the funnel(s).

NOTE: When using 2 funnels (one white), place the modified funnels together as tight and as straight as possible. Tape the funnels together at the outer edges.

3. Place the funnel(s) in the neck of can. Tape on outer edges to hold funnel(s) in can.



6. If plastic explosive is used, fill the can with the explosive using small quantities, and tamp with wooden rod or plate.

NOTE: If sensitive explosive is used, refer to step 5 of Section II, No. 3.



7. Cut wooden rods (length 2 inches longer than the penetrator length) (See table 1). Position three of these rods around the explosive filled can and fasten to plate with tape.

NOTE: The position of the rods on the container (top) conforms to standard dimensions to obtain the penetration given in the table.



Table 1

Penetrator Material	No. of Penetrators	Penetrator		Penetration	
		rod/rod	rod/rod	rod/rod	rod/rod
Glass	1	6 1/2"	3 cm	4	10 cm
Steel	3	1	3-1/2 cm	3-1/2	8 cm
Aluminum	3	3-1/2"	4 cm	3-1/2	8 cm
*If only one steel or aluminum rod is available:					
Steel	1	1	3-1/2 cm	3-1/2	4 cm
Aluminum	1	1	3-1/2 cm	3-1/2	4 cm

8. Make a hole for blasting cap in the center of the charge with rod or stick.



CAUTION: Do not place blasting cap in place until the Fused Shaped Charge is ready for use.

INSTALLING

1. Place blasting cap on the hole in top of the charge. If non-detonator cap is used, the cap is stamped around base and base is long enough to provide safe delay.



2. Place (tip) if necessary) the Fused Shaped Charge on the target or on that which is between the base of charge and target.
3. If electric cap is used, connect blasting cap wires to firing circuit.

LINEAR SHAPED CHARGE

This shaped charge made from construction materials will cut through up to nearly 2 inches of armor depending upon the liner used (see table).

MATERIAL FUNCTION

Standard structural angle or pipe (see notes)

Wood or reinforced concrete

Rebar } of pipe to read

Yield

Wood: 2x4, 1x6 or 2" steel diameter

Explosive

Mounting ring

Type

Table

Type	Material	Liner Size (in. x diam.)	Thickness		Penetration	
			in.	material	in.	material
angle	steel	3x8 legs x 1/4" web	1	1mm	3-1/4	1mm
angle	aluminum	3x8 legs x 3/16" web	1-1/2	14mm	3-1/2	1mm
pipe half section	aluminum	2 diameter	1	1mm	1	1mm
pipe half section	copper	2 diameter	1	1-1/2mm	1-1/4	1mm

NOTE: These were the only linear shaped charges of this type that were found to be more efficient than the Ribbon Charge.

Ribbon Charge: As should be expected, just place or target



PROCEDURE**1. If pipe is used —**

- a. Place the pipe in flat vice and cut pipe to test length — Remove the pipe half section from vice.
- b. Measure one of the pipe half sections, or note the number change.

**2. Place angle or pipe half section with open end face down on a flat surface.****3. Make container from any material available. The container must be as wide as the angle or pipe half section, twice as high, and as long as the destruction to be made with the charge.****4. Place container over the flat angle or pipe half section and tape flaps to container.****5. If plastic explosives to used, fill the container with the explosive using small quantities, and tamp with wooden rod or stick.**

NOTE: If available explosives to used, refer to step 4 of Section II, No. 2.



4. Cut wooden rod to length of inches longer than the standoff length (see table). Position the ends at the corners of the explosive filled container and hold in place with tape.

NOTE: The position of the ends on the container must conform to standoff and penetration dimensions given in the table.



5. Make a hole for blasting cap to the side of the container 1/2 in. above the floor and centered with the wooden rod.



CAUTION: Do not place Blasting cap in place until the Linear Shaped Charge is ready for use.

HOW TO USE

1. Place Blasting cap into hole on the side of the container. If non-electric cap is used, be sure cap is crimped, twisted base and there is long enough to permit wire delay.



2. Place tape (if necessary) the Linear Shaped Charge on the upper or the bottom in between base of charge and target.
3. If electric cap is used, connect blasting cap wires to firing circuit.

PIPE FITTING FOR 1/2" AND 3/4" PIPING

A 9 mm pistol can be made from 1/2" steel gas or water pipe and fittings.

MATERIALS REQUIRED

1/2" nominal size steel pipe 4 to 6 inches long with threaded ends.

1/4" solid pipe plug

Two (2) steel pipe couplings

Metal strip - roughly 1/16" x 1/4" x 5"

Two (2) elastic bands

Pipe head nail - 4d or 6d (approx 1/16" diameter)

Two (2) wood screws (6"

Wood 8" x 1" x 1"

Drill

1/4" wood or metal rod, approx 8" long

**PROCEDURE**

1. Carefully inspect pipe and fittings

- Make sure that there are NO cracks or other flaws in the pipe or fittings.
- Check inside diameter of pipe using a 9 mm cartridge as a gauge. The bullet should cleanly fit into the pipe without forcing but the cartridge case SHOULD NOT fit into pipe.
- Double diameter of pipe MUST NOT BE less than 1 1/4 (single bullet diameter = 12x inches = 1.375")

2. Drill a 5/16" (1.63 cm) diameter hole 1/4" (approx) into end into end coupling to remove the thread.



Drilled section should fit tightly over second section of pipe.

3. Drill a 15/64" (3 mm) diameter hole 1/4" (1.9 cm) into pipe. Use cartridge as a gauge. When a cartridge is inserted into the pipe, the base of the case should be even with the end of the pipe. Thread coupling tightly onto pipe. Attach and fire.



4. Drill a hole in the center of the pipe plug just large enough for the nail to fit through.



HOLE MUST BE CENTERED ON PUG.

5. Push nail through plug until head of nail is flush with square end. Cut nail off at other end $1/2$ to $3/4$ inch (1.27 to 1.90 cm) away from plug. Round off end of nail with file.



6. Bend metal strip to 90° shape and drill holes for wood screws. File two small notches at top.



7. Saw or otherwise shape $1/2$ by 1/4 inch thick board into shape.



8. Drill a $3/16$ " diameter (0.41 cm) hole through the stock. The center of the hole should be approximately $1/2$ " (0.31 cm) from the top.



9. Slide the pipe through this hole and attach from coupling. Remove drilled plug from rear coupling.



NOTE: If 5/16 inch is not available, 1/2 inch will do. If grooves in the top of the stock and tape (put correctly in place)



18. Position metal strip on stock so that top will fit the head of the nail. Attach to stock with wood screws on each side



19. Bring elastic bands from front, coupling to each on each side of the strap.



SAFETY CHECK - TEST FIRE BEFORE HAND FIRING

1. Locate a barrier such as a stone wall or large tree which you can stand behind to raise the pistol higher than head
2. Mount pistol vertically to a table or other rigid support so head too high to reach all the barrel
3. Attach a cord to the firing strap on the pistol.
4. Holding the other end of the cord, go behind the barrier
5. Pull the cord so that the firing strap is held back.
6. Release the cord to fire the pistol. (If pistol does not fire, check the elastic bands or increase their number.)

IMPORTANT: Fire at least three rounds from behind the **SHIELD** and then try to support the pistol before you attempt to load the 10.

HOW TO OPERATE PISTOL

1. To Load

- a. Remove plug from rear coupling.



- b. Place cartridge into pipe.



- c. Replace plug.

2. To Fire

- a. Pull strap back and hold with thumb until ready.



- b. Release strap.

3. To Remove Shell Case

- a. Remove plug from rear coupling.

- b. Insert 1/4" diameter steel or wooden rod into front of pistol and push shell case out.



SECTION 02-04200

A 12-gauge shotgun can be made from 1/2" water or gas pipe and fittings.

**MATERIALS REQUIRED**

Wood 2" x 4" x 30"

1/2" water or gas pipe 30" to 36" long threaded on one end.

1/4" steel coupling

Sold 3/4" pipe plug

Steel strap 1/4" x 1 1/2" x 4"

Twine, heavy (200 yards approximately)

1 wood screw and an iron bolt

Flat head nail 4D or 5D

Need drill

Saw or baffle

File

Shells or powder

Gunite Beads

INSTRUCTIONS

1. Carefully inspect pipe and fittings.
- a. Make sure that there are no cracks or other flaws.
- b. Check inside diameter of pipe. A 12-gauge shot shell should fit into the pipe but the brass rim should not fit.
- c. Outside diameter of pipe must be at least 1 1/2" (1 3/4" max).



- a. Cut stock from wood using a saw or baffle.



- b. Cut a 3/8" deep 1/2" groove in top of the stock.

- +
- Turn numbers into text**
- with
- `toText`



3. Coat pipe and "Y" groove of stick with shellac or Venequer and while still wet, place pipe in "Y" groove and wrap pipe and stick together using two heavy layers of Venea. Coat Venea with shellac or lacquer after each layer.

4. DUE is better than any system of price setting because everyone can buy everything they need for about the same price.



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8. Push nail through plug and nail into floor (1/4" - just the plug).



- Keywords:** child sexual abuse; disclosure; disclosure strategies

12. Bend 4" metal string into U-shape and drill hole for wood screw. Attach metal string on the long side (1") across board.





11. Position metal string on stick so that top will hit the head of the nail. Attach to stick with wood or wire.



12. Place screw in each side of stick, about 4" in front of metal string. Pass electric bands through notch in metal string and attach to screw on each side of the stick.

SAFETY CHECK - TEST FIRE SHOOTER BEFORE HAND-PIRDED

1. Load a barrier with a stone wall or large tree which you can stand behind to ease the weapon explosion when fired.
2. Mount charges solidly to a table or other rigid support at least 6-inches in front of the barrier.
3. Attach a long cord to the firing string on the charges.
4. Holding the other end of the cord, go behind the barrier.
5. Pull the cord so that the firing string is held taut.
6. Release the cord to fire the charges. If charges does not fire, shorten the electric bands or increase their number. }

CAUTION: Fire at least five rounds from behind the barrier and then re-inspect the charges before you are taught to shoulder fire it.

HOW TO OPERATE REDUCOR

1. To Load



- a. Take plug out of breech.



- b. Put cartridge shell into pipe.
- c. Insert plug hand-tight into breech.

2. To Fire



- a. Pull strap-back and hold with thumb.
- b. Release strap.

3. To Unload Gun

- a. Take plug out of breech.
- b. Slide out used cartridge.

SHOOTHILL REPELLANT CONTROL

When desired, shoothill can be modified to remove shot repellants.

MATERIALS REQUIRED

Shoothill

Acqueducter or nails

Any of the following filler materials:

Crushed Stone

Rock Flare

Dry Street Gravel

Flare Dry Sand/Gravel

PROCEDURE:

1. Carefully remove a ring from shoothill using a conventional ring puller.



RING CLAMP



RING CLAMP



NOTE: If a cartridge is at the bottom of a ring type, remove top wall.

2. Press shot from shell.



SHOT

3. Replace new layer of shot in the cartridge. Pour in filler material to fill the space between the shot.



SHOT

FILLER

WAX

REPELLANT

4. Repeat step 3 until all steel has been replaced.
5. Replace top steel (if applicable) and re-field casting.



6. Ball shell on flat surface to remove top casting and rollers remains.



7. Heat end of area with wax.



HOW TO USE

This rod is loaded and fired in the same manner as standard shotshell. The shot spread will be about 1/3 that of a standard rod.

CARTRIDGE (2-1/2 in. Standard Rifle Cartridge)

A rifle cartridge made from water or gas pipe and fittings. Standard cartridges are used for ammunition.



MATERIALS REQUIRED:

Wood approximately 1 in. x 4 in.
x 48 in.
1/2 in. standard water iron valve or
gas pipe 48 in. long threaded
at one end
1/2 in. or 1/4 in. valve
1/2 in. or 1/4 in. threaded pipe
1/2 in. pipe coupling
Steel strip approximately 1/2 in.
x 1/2 in. x 4 in.

Twine, heavy (14 yards approx.)
2 wood screws and screws/legs
Flat head nail about 1 in. long
Steel drill
Saw or knife
File
Pipe wrench
Shovel or trowel
Shovel/hoop
Steel 1/2 in. pipe plug

INSTRUCTIONS:

1. Support pipe and fittings carefully.
 - a. Be sure that there are no cracks or flaws.
 - b. Check inside diameter of pipe. 2 1/2 in. pipe should
fit into 1/2 in. pipe.
2. Cut wood from wood using saw or knife.



2. Cut a 1/2 in. deep "V" groove in top of the shell.



3. Fabricate ribs turned from pipe.

- a. Fit an 8000 series diameter of threaded of 3/4 in. pipe for about 1/2 in. on each of outside ends with 10 in.
- b. Slide rubber into threaded pipe using pipe wrench.
- c. Insert short threaded pipe into rubber,

- d. Turn 1/2 in pipe coupling into threaded pipe using pipe wrench. Add rubber gasket for an airtight or gas-tight or oil tight fittings.



4. Coat pipe and "V" groove of shell with shellac or lacquer. While still wet, press pipe in "V" groove and wrap pipe and shell together using thin layers of tissue. Coat tissue with shellac or lacquer after each layer.

5. Drill a hole through center of pipe and large enough for ball to pass through.



6. Use threaded end of pipe for



1. Push ball through plug and out all rounded 1/8" to .25 inch past the plug.



2. Remove plug into coupling.

10. Bend 2 in. metal strip into 1/2" shape with both ends for round wires. Bend metal strip on the long side 1/8" to .25 inch.



11. Position metal strip on inside of stick (or will be the head of the stick) sticks to stick with round wires.



12. Place wires in each side of stick about 4 in. to base of metal strip. Place wires under through stick to metal strip and extend to opposite each side of the stick.



MAINTENANCE - THE PIPE AFTER REPAIR WORK DONE

1. Locate a barrier wall or a close wall or fence from which you can stand behind to take fire response.
2. Stand with body to a fence or other rigid support, at least ten feet in front of the barrier.

- a. Attach a long cord to the firing strap on the rifle.
- b. Holding the other end of the cord, go behind the barrier.
- c. Pull the cord so that the firing strap is held back.
- d. Release the cord to fire the rifle. (If the rifle does not fire, double the elastic bands or increase their number.)

IMPORTANT: Use at least two rounds from behind a barrier and then attempt the objective you attempt to destroy, Part B.

HOW TO OPERATE RIFLE

1. To Load

- a. Remove plug from coupling.



- b. Put magazine into rifle.



- c. Insert plug back-right into coupling.

2. To Fire



- a. Pull strap back and hold with thumb.
- b. Release strap.

3. To Eject the

- a. Take plug out of coupling.
- b. Drive out spent case using index or key.

REPAIRABLE PRIMER

a. method of setting a previously fired primer reusable

INTERNAL SECURITY

Good workdays only

If long tools being approximately the same diameter as the mouth of the primer (prong).

"Wet/dry/dry" method - i.e. if wet needed for good primer

Then

However

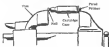
Both or other sharp edged instrument

PROCEDURE

1. The new tool is a small primer that is small enough to fit through hole in primer prong.



2. Place workdays over and will follow joint of wire. If wire not fired primer will not be shown.



3. Remove wire from primer top



6. File down point of mechanical wire tip as flat.

7. Remove solder from base of primer cap with hammer and hammer nail.



8. Cut off tips of the heads of any the-wire-type needles using file. Carefully smooth the heads flat on the surface with needles. Heads must still fit snugly in the craters of cap.



CAUTION: Do not place wire tips in mouth, eyes or use during fit of the tool. Wire may spring.

9. Place wire into primer cap. Compress wire with needles until primer cap is fully packed.



10. Place cap in primer pot and top down.



11. Place cap in pot with wire base facing downward.



12. Place cartridge case vigorously against wire and pull gently until primer is seated into bottom of pot. The primer is now ready to set.



PIPE FITTING FOR 48-CALIBER AMMUNITION

5. All required ground cuts for waste from 1/2 in. nominal diameter cartridge in either pipe and fittings. Cartridge range is about 14 yards @ 1/2 L/D rounds.

EXTERNAL ASSEMBLY

Steel pipe: 1/2 in. (1/2 nominal) diameter and 8 to 10 ft long with threaded ends.

1 threaded coupling for 1/2 pipe

Initial pipe plug in the pipe coupling

Steel rods: 4 1/2 in. x 4-1/2 in. x 1 in. (2) and 10-1/2 in. x 1-1/2 in.

Two to fitting

Flat head nut: approximately 1/2 in. (1/2 nominal) diameter

1 coupling nut: approximately 1/2 in. (1/2 nominal) diameter

Steel strips: 1 in. x 1/2 in. x 1/8 in. (2) 1/2 in. x 1/8 in. x 1 in.

Brick: 4 in. (10) long; with one exposed.

Flange heads

Drill: one 1/2 in. (2-1/2 inch) diameter and one having same diameter as hole previously

Box: 1/2 in. (10) in diameter and 4 to 10 ft long

Box of bolts

PROCEDURE

1. Carefully inspect pipe and fittings.
 - a. Make sure that there are no cracks or other flaws in the pipe and fittings.
 - b. Check inside diameter of pipe using a 48 caliber cartridge in 4 gauge. The cartridge must slide in the pipe easily but without forcing.
 - c. Outside diameter of pipe MUST NOT BE less than 1/2 L/D times the bullet diameter.
2. Follow procedure of Section 08, the 1 steps 4, 5, and 6.

3. Cut ends from steel using saw or bolt.

Section Constraints:

1-1/2"	1-in.
0-1/2"	0-1/2"
0	0
1-1/2"	4
0	10-1/2"



4. Cut a 1/2 in. (0-1/2 in) deep groove in top of block.



5. Remove roughage with file. Remove plug and use coupling.



6. Assembly affixes pipe to steel using string or tape.



7. Follow procedures of Section III, Sec. 1, steps 10 and 11.

8. (Optional) Bend both the trigger. Drill hole in steel and place hole in hole on strap will be accelerated by both when pulled back. If hole is not available, use strap or trigger by pulling back and releasing.



2. Follow SAFETY CHECK, Section 11, Step 1.

HOW TO USE

1. To load

- a. Remove plug from rear opening.
- b. Wrap string so double head around extraction groove so case will not fall back forward.



- c. Place cartridge in pipe.



- d. Replace plug.

2. To fire

- a. Pull manual string back and hold in trigger.
- b. Pull trigger when ready to fire.



NOTE: If held in set mode, pull string back and release.

3. To remove cartridge case

- a. Remove plug from rear opening.
- b. Insert rod into front of pistol and push cartridge case out.



WATER CURE

As suggested, prepare using safety razor's handle as the propellant and a metal object as the projectile. Treated target (6) about 40 yards (20 meters).

MATERIAL REQUIREMENTS

Steel pipe 16 in. (41 cm) long and 1/2 in. (1 cm) in diameter (purchased) (also see the equivalent, described in note and listed up to 40 pipe).

Sturdy wooden 1 foot(s) of 30 square inch.

Wood - 16 in. x 4 in. x 1 in. (7/8 in. x 1 in. x 1 in.)

Two copper (20 safety razor (20 "flexible" anywhere available) (20

flexible razor or wiring

Steel plate, about 4 in. x 1/4 in. x 1/16 in. (10 cm x 1 mm x 0.1 mm)

2 pipe/ about 1 in. x 1/2 in. and 1 in. x 1/2 in. (2 in. x 1/2 in. and

1/2 in. x 1/2 in.)

Wood to base

Electric handle

Steel object (steel rod, bolt with head cut off, wire, approximately

1/16 in. x 1/2 mm in diameter, and 1/16 in. x 1/2 mm long if wire

or steel, 1-1/2 in. (2 in. long) (1/16 in. x 1/2 in. x 1/2 in. long

1/2 in.)

Steel plate 1 in. (2 in. x 1/2 in. in diameter and 1/16 in. x 1/2 in. long plate

1/16 in. x 1/2 in. (2 in. x 1/2 in. in diameter and 1/16 in. x 1/2 in. long)

Steel rod handle

PROCEDURE

1. Carefully inspect pipe and fittings. Be sure that there are no cracks or other flaws.

4. Still, small hole in center of end cap. If safety razor is used, for sure it will pass through this hole.



5. Cut sheet from wood using saw or bands.

Metric	English
8 mm	5/16 in.
20 mm	3/4 in.
30 mm	1 1/4 in.
100 mm	4 in.



6. Flip 5/16 in. (5-1/16 inch) flap 180 degrees to top of sheet.



7. Remove end flap into pipe with finger tip.
8. Attach pipe to wood with string or tape.



9. Attach wood strip into 1/4 inch flange and 1/4 inch below the wood surface. Attach wood strip on long side 1/4 inch (1 inch from end).



10. Position wood strip on sheet so that the top will be the center of hole drilled in next step.

9. Attach metal stake to string with nail and ball. This will deflect string from ball to nail eye when gun is fired. Be sure that heads of ball is retained by ball to nail eye.



10. Attach string to stake with wood screws.



11. Place screw on each side of stake about 4 in. (10 cm) in front of metal string. Place string through hole in screw. String and screw to secure on each side of stake.



HOW TO USE

A. When The Gun Is Available.

1. Cut off metal heads from 2 holes of machine with ball. Drop metal heads from eye.



6. Push down metal strip a little. (Fig. 2) Make sure that it becomes a true oval shape of 2 1/2 inches. Place rag into pipe to cover search heads, follow next step. **TAPE STRAP WITH CAUTION**



7. Place metal strap into pipe. Place 1 in. x 8 in. rag into pipe to cover pipe. **TAPE STRAP WITH CAUTION**

8. Place 2 in. rag over metal strip to seal top. Be sure metal plug will fit snug when it is released.

NOTE: It may be necessary to tape top strap to end cap.



9. When ready to fire, pull metal strap back and release.

B. When "Wicker-Layered" Modules Are Available

1. Follow steps 1 through 8 in A.

2. Carefully cut off tips of heads of 2 "wicker-layered" modules with knife.



3. Place one tip to hole in end cap. Push in with wicker end of wicker stick.

4. Place second match tip on a piece of tape. Place tape on match tip so strongly word label is on top.



5. When ready to fire, pull match away back and release.

C. When Safety Flow Is Available (Recommended for Junior Trainers)

1. Remove seal cap from top. Push rear end of safety flow through safety flow through hole in seal cap on flow line to an angle of seal cap.



2. Follow steps 1 through 5 in A.
3. The second match in safety flow now remains in place.

NOTE: Rear end of safety flow through back of match head.

4. Wrap match around support and tape. The flow should be in contact with match head.



5. Replace seal cap on pipe.
6. When ready to fire, pull match away with string, flow, and match.

SCENARIO: CARRY - CARRY FIRE AND FIGHTING BACK SCENARIO

1. Establish a barrier such as a stone wall, or large tree which you can count behind to mask the weapon explosion when fired.
2. Stand your ability in a hole or other right support at least two feet in front of the barrier.
3. Attach a long cord to the firing string on the gun.
4. Holding the other end of the cord, go behind the barrier.
5. Pull the cord so that the firing string is held back.
6. Release the cord to fire the gun. (If you does not fire, release the cord to make an immediate firing attempt.)

REMARKS: Fire at least five rounds from behind the barrier and then to attempt the gun before you attempt to shoot at him if

RIFLE CARTRIDGE

NOTE: See Section 02, 001-1 for reusable primer.

A method of making a previously fired rifle cartridge reusable.

EXTERNAL EXAMINE

Empty rifle cartridge, be sure that it will fire inside gun.

Thimble test that the base neck of cartridge is from 1-1/4 to .01 cm long.

Heavy or "stick-together" matches (about 20 matches are needed for 1-40 mm cartridge).

Tag and label 1/4 to 11-1/2 cm square for 7.62 mm cartridge base.

Box

NOTE: Number of matches and size of tag will depend on particular cartridge used.

PROCEDURE

1. Remove coating on heads of matches by scraping match sticks with sharp edge.



CAUTION: If wooden, cotton-cup-where matches are used, cut off top (top) brass/steel or metal Remanite Primer. Section 02, 001-1.



2. Fill previously primed car-
tridge case with match head
material up to the neck. Pack
evenly and lightly with match
stick.



CAUTION: Remove head of match stick before packing. In all packing
operations, avoid oil or the water and pack gently. Do not hammer.

3. Place tag end in neck
of case. Pack with match
stick from which head was
removed.



4. Saw off head end of both so
remainder is approximately the
length of the standard bullet.

Standard Tube



5. Place ball in cartridge case so that it sticks out about the same
length as the original bullet.



NOTE: If ball does not fit snugly, force paper or match sticks between
ball and case, or wrap tape around ball before inserting in case.

PIPE PATCH FOR 3/8 CALIBER AMMUNITION

A 3/8 caliber pistol can be made from 1/8 in. nominal diameter steel gas or water pipe and fittings. Barrel length is approximately 30 yards (30 inches).

MATERIALS REQUIRED

Steel pipe, 1/8 in. (1 mm) nominal diameter and 8 in. (20 cm) long (20mmx20mm outer diameter)

Ball-gas plug, 1/8 in. (1 mm) nominal diameter

1 steel pipe coupling, 1/8 in. (1 mm) nominal diameter

Metal ring, approximately 1/8 in. x 1/4 in. x 1/4 in. (2 mm x 6 mm x 6 mm) or 220 mm or (20-1/2 in.) long

Flange head

Flange head and 1/8 in. (1 mm) nominal diameter (1-1/2 in.)

2 metal screws, 1/8

220 mm, 1/8 in. x 1/4 in. x 1/4 in. (2 mm x 6 mm x 6 mm) or 220 mm or (20-1/2 in.) long

2-1/2

Wood or metal rod, 1/8 in. (1 mm) diameter and 8 in. (20 cm) long

See as built

**PROCEDURE**

1. Carefully inspect pipe and fittings

- a. Make sure that there are (0) cracks or other flaws in the pipe or fittings
- b. Check inside diameter of pipe using a 3/8 caliber calipers or a gauge. The ballist should fit closely into the pipe without forcing, but the calipers must ABSOLUTELY fit into the pipe.
- c. Outside diameter of pipe MUST NOT BE less than 1-1/2 times the ballist diameter.

6. Drill a 30/34 in. (14 mm) diameter hole 2 1/2 in. (63 mm) into the coupling to remove the threaded section. Section should sit tightly over smooth section of pipe.



7. Drill a 30/34 in. (14 mm) diameter hole 2-1/2 in. (63 mm) into pipe. Use carbide or H drill when a markings is inserted into the pipe. The shoulder of the pipe should rest against the end of the pipe. Thread coupling tightly onto pipe, drilled end first.



8. Follow procedures of Section III, No. 1, steps 4 through 11.
9. Follow SAFETY CHECK, Section III, No. 1.

HOW TO OPERATE PFC-02.

Follow procedures of HOW TO OPERATE PFC-01, Section III, No. 1, steps 1, 8, and 9.

PIPE PENAL FOR 12 CALIBER WEAPONS
LONG OR SHORT CARTRIDGE

a. 12 Caliber pipe can be made from 1/2 in. nominal diameter steel bar, steel pipe or other pipe and fittings. Total weight is approximately 33 pounds (38 meters).

MATERIAL REQUIREMENTS:

Steel pipe, steel bar, 1/2 in.

(2 mm) nominal diameter and

4 in. (10 cm) long with

threaded ends (optional)

Steel pipe (pipe 1/2 in. (2 mm)

nominal diameter

2 steel pipe couplings, 1/2 in. (2 mm)

nominal diameter

Steel clamp, approximately 1/2 in.

x 1/2 in. x 1/2 in. (2 mm x 2 mm

x 20 mm or 10-1/2 mm)

Elastic bands

Flat lead ball - .40 or .45 (approx-

imately 1/2 in. (2-1/2 mm)

diameter

2 steel screws, 20

hardware, 1/2 in. x 1/2 in. x 1/2 in.

(20 mm x 10-1/2 mm x 20-1/2 mm)

Wool

Wood or metal rod, 1/2 in. (2 mm)

diameter and 4 in. (10 cm) long

Bar or handle

CONSTRUCTION:

a. Construct the pipe and trigger:

- a. Make sure that there are NO cracks or other flaws in the pipe or fittings.
- b. Check inside diameter of pipe using a .40 caliber cartridge, long or short, as a gauge. The bullet should fit snugly into the pipe without forcing, but the cartridge case should not fit in the pipe.
- c. Outside diameter of pipe MUST NOT BE less than 1-1/2 times the bullet diameter.

3. Drill a 1 1/8 in. (32) size diameter hole 5/16 in. (2) 1/2 in) deep in pipe for long cartridge. If a short cartridge is used, drill hole 1/2 in. (2) max depth. When a cartridge is inserted into the pipe, the shoulder of the pipe should butt against the end of the pipe.



4. Insert the coupling into the pipe. The coupling length is allow pipe plug to thread in pipe. Back against the cartridge rear.



5. Drill a hole off center of the pipe plug tool, large enough for the nail to fit through.



NOTE: Revised hole MUST BE OFF CENTER to plug.

6. Push nail through pipe plug until head of nail is flush with square end. Cut nail off at other end 1/16 in. (1-1/2 max) away from plug. Round off end with file.



7. Follow procedures of Section 3L, the 1) steps 1 through 11.
8. Follow SAFETY CHECK, Section 3L, the 1).

HOW TO OPERATE

Follow procedures of HOW TO OPERATE PIPEREL, Section 3L the 1, steps 1, 2, and 3.

LOW TEMPERATURE PORTING

Low temperature systems (cryogenic) for improved small arms weapons (Section 10) can be made from steel pipe or metal pipe and fittings.

MATERIAL REQUIRED

Cryogenic container

Steel pipe nipple, 8 ft. (2.1 m) long -
See Table 1 for diameter

2 steel pipe couplings - See Table 2
for dimensions

Cryogenic valve - See Table 3 for
dimensions

Steel
distribution system

INSTRUCTIONS

1. Drill hole in grounds container or tank valve to fit outside diameter of pipe nipple. (See Table 1.)
2. Drill four (4) rows of holes in pipe nipple. (See Table 1 for diameter and location of holes.)

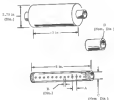


Table 1. Low Signature System Dimensions

	4	8	16	Coupling in	Radius per foot	(in-Swing) Total
48-Cal.	3/8	1/4	3/8	3/8	11	48
36-Cal	3/8	1/4	1/8	1/4	10	48
30-Cal	3/8	1/4	1/8	1/4	10	48
24-Cal	3/8	1/4	1/8	1/4	10	48
18-Cal.	1/2	3/16	1/16	3/8	10	48

*Extra Heavy Pipe

All dimensions in inches

2. Thread one of the pipe couplings to the drilled pipe stub.



3. The coupling length is allowed to allow for the full length of the threaded pipe stub. The coupling should be secured to the end of the drilled pipe stub.

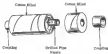


4. Separate the top half of the pipe stub from the bottom half.



5. Insert the pipe stub in the drilled hole at the base of the top half of the stub. Push the stub into the hole until the coupling is seated and secured the pipe stub.

7. Push the identified collar to the left of pre-installed bearing tube to connect. Assemble connector on the bottom half.



8. Thread the silver coupling into the pipe nipple.

NOTE: A longer connector and pipe nipple, with many "H" and "R" dimensions as listed above, will further reduce the exposure of the system.

ASSEMBLY

1. Thread the low signature system on the selected weapon assembly.
2. Place the proper collar wad into the muzzle end of the system.

Table B. Collar Wadding - Size

Weapon	Collar Wad Size
40 Cal.	1 x 1/2 x 6 inches
30 Cal.	1 x 4 inches
7 mm	1 x 4 inches
7.62 mm	1 x 4 inches
20 Cal.	Not needed

3. Load Weapon
4. Weapon is now ready for use.



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